

## 4.8 UTILITIES AND SERVICE SYSTEMS

### 4.8.1 SETTING

Service systems and utilities such as electricity, domestic water, sanitary/stormwater sewers, solid waste, communications and natural gas are typically provided to the study area by a variety of local purveyors (e.g., cities, counties, special districts, water agencies, and power companies). The availability of such services depends on the level of urbanization in a given area. Certain utilities such as sanitary sewer/stormwater, natural gas, are usually provided via underground pipelines or conduits.

Southern California Gas Company (SCG) is the nation's largest natural gas distribution utility, serving 18 million consumers through 5.1 million meters. The company's service territory encompasses 23,000 square miles, from San Luis Obispo on the north, to the Mexican border in the south, and 535 cities, excluding the City of Long Beach and the County of San Diego (both of which are wholesale customers of SCG).

San Diego Gas & Electric (SDG&E) is a regulated public utility that provides service to three million consumers through 1.3 million electric meters and 775,000 natural gas meters in San Diego and southern Orange counties.

SCG and SDG&E are part of Sempra Energy Utilities; the umbrella for Sempra Energy's regulated business units. Sempra Energy is a Fortune 500 energy services holding company based in San Diego.

The proposed program involves conduit installation in existing live natural gas pipelines within SCG/SDG&E's service territories by using an approved FIG technology. FIG installation and repair or replacement work would occur primarily within existing public road rights-of-way in a region with a well-established utility infrastructure.

### 4.8.2 REGULATORY SETTING

#### ***CALIFORNIA PUBLIC UTILITIES COMMISSION***

The CPUC regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. The CPUC is responsible for assuring California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud, and promoting the health of California's economy.

The CPUC regulates natural gas local distribution facilities and services, natural gas procurement, intrastate pipelines, and intrastate production and gathering. The CPUC's approach to natural gas regulation is to ensure low rates with fair allocation across customer classes, service reliability and consumer protection, adequate infrastructure balanced with efficient system use, and provide incentives for efficiency and lower costs. The CPUC works to provide opportunities for competition when in consumer interest, takes the lead in environmental review of gas-related

projects, recognizes the growing interaction of electric and gas markets, and monitors gas energy efficiency and other public purpose programs.

The Commission establishes service standards and safety rules, and authorizes utility rate changes. It monitors the safety of utility and transportation operations, and oversees markets to inhibit anti-competitive activity. In its efforts to protect consumers, it prosecutes unlawful utility marketing and billing activities, governs business relationships between utilities and their affiliates, and resolves complaints by customers against utilities. It implements energy efficiency programs, low-income rates and telecommunications services for disabled customers. It oversees the merger and restructure of utility corporations, and enforces CEQA for utility construction. The CPUC works with other state and federal agencies in promoting water quality, environmental protection and safety. It also intervenes in federal proceedings on issues that affect California utility rates or services.

The Commission also regulates investor-owned water and sewer system utilities. It does not have jurisdiction over municipal utilities or districts. The Water Division supports the Commission by investigating water and sewer system service quality issues and analyzing and processing utility rate change requests.

### 4.8.3 IMPACTS AND MITIGATION MEASURES

#### ***APPROACH TO ANALYSIS***

This analysis focuses on the potential for the program to affect existing underground utilities and service systems during FIG installation and operation. In addition, this analysis discusses the program's demand for public utilities and services and any infrastructure improvements required to meet these demands.

#### ***SIGNIFICANCE CRITERIA***

Determination of impacts of the proposed program is based on criteria a-g in the environmental checklist as listed above. According to CEQA, a project would normally have a significant effect on public utilities and service systems if it would interfere with or substantially change the demand for the utility service, generate a need for new utilities, or require substantial alteration to utility systems (e.g., construction or expansion of public facilities such as storm drainage systems, and wastewater treatment facilities). For the purposes of this analysis, the program would be deemed to have a significant impact if it would affect and disrupt existing underground utilities.

#### ***IMPACT MECHANISMS***

##### **Construction Activities**

FIG installation would involve ground-disturbing activities associated with accessing an existing natural gas pipeline for installation of conduit. During FIG installation activities:

- affect and disrupt existing underground utilities;
- generate construction debris or soils that could affect the availability of regional landfill capacity and compliance with solid waste regulations;
- require water that could affect existing water supplies;
- generate surface water runoff that could exceed wastewater treatment requirements of the Regional Water Quality Control Board and that could affect drainage systems and associated wastewater treatment facilities.

### **Operation of FIG Pipelines**

Placement of conduit within existing natural gas distribution pipelines may:

- interfere with or substantially change the demand for the utility service;
- generate a future need for new utilities; or
- require substantial alteration to utility systems.

### ***IMPACT ASSESSMENT***

The proposed new form of service has service implications including potential impacts on operations, existing capacity and future expansion of active gas pipelines. SCG/SDG&E does not anticipate that maintenance required on the conduit or fiber optics would necessitate shutting off the respective gas pipeline at any time, which could potentially impose a cost on the ratepayers either through disruption or curtailment of service. SCG/SDG&E would ensure that such technology would not necessitate the interruption of gas service either upon the initial installation or subsequent maintenance. In the case that installation of fiber optics cable could interfere with pipeline capacity needed for service, SCG/SDG&E has drafted special conditions upon which this potential is taken into account.

Additionally, the current flowing capacity would decline as a direct result of offering the proposed tariff service. Only pipelines that operate at 60 psi or less will be eligible for this service. Further, any possible impact would be very local in nature, affecting only a particular distribution line.

Finally, further issues exist in response to when capacity of the distribution system must be expanded due to future gas load demands. To resolve this issue, SCG/SDG&E would not allow installation of fiber optic cable in any pipeline if they estimate that installation would result in insufficient gas capacity in the line in the next 60 months, unless arrangements were made for the carrier for it to pay to increase the gas capacity to avoid this situation. Thus, in the case of capacity constraints more than 60 months in the future, the Carrier may elect to terminate service or relocate its route, such that no additional pipeline construction or trenching would occur.

## Pipeline Capacity

### **Impact UTL-1: The placement of fiber optic cable within existing gas pipelines would reduce the service capacity of the existing gas pipelines.**

The placement of fiber optic cable within existing gas pipelines would reduce the service capacity of the existing gas pipelines. An estimation of the capacity rendered useable was developed using results from a series of flow displacement studies conducted at SCG/SDG&E's Engineering Analysis Center. The decrease in capacity was calculated for each pipeline size and material. For purposes of the analysis, SCG/SDG&E assumed the maximum conduit size allowed for insertion in each Fiber In Gas pipeline as 1.125 inches in diameter (0.625 inches and 0.875 inches in diameter were maximum conduit sizes +for 2 and 4 inch diameter pipelines, respectively). A summary of the results from the capacity tests are located in **Table 4.8-1**.

**TABLE 4.8-1**  
**ESTIMATE OF CAPACITY LOSS IN NATURAL GAS PIPE IN**  
**ELIGIBLE DISTRIBUTION MAINS AND MAXIMUM CONUIT SIZES**

<b>Approximate Pipe Size (Steel and Plastic Pipe)<sup>a</sup></b>	<b>Approximate Percentage Reduction of Capacity</b>
2 inches	18.58% to 22.74%
3 inches	18.08% to 21.61%
4 inches	14.62% to 16.78%
5 inches	12.79% to 12.22%
6 inches	11.35%
8 inches	10.37%
10 inches	9.07%
12 inches	7.66%

<sup>a</sup> Plastic Pipes are only found in distribution mains at less than 5 inches in diameter.

<sup>b</sup> Flow capacity reduction study reflects operating pressure at 40 psig. Gas velocity of 70 feet per second inside each size of service line was used for the purpose of estimating capacity losses.

Depending upon the size of the gas pipe and conduit, and the needs of a particular service area, a reduction in a 4-inch gas pipeline's capacity may have adverse individual and/or cumulative impact to natural gas service. In a developed environment, a large amount of natural gas infrastructure is already in place and natural gas service needs would be expected to remain relatively constant in the future, because limited areas would be available for future growth.

### **Mitigation Measure UTL-1a: Application of the Schedule No. G-FIG's Terms and Special Conditions shall address/avoid potentially significant impacts to pipeline service capacity.**

Special Conditions 11 and 12 of the DRAFT Schedule No. G-FIG, related to “Pipeline Capacity Available to Provide Service,” state:

- Access will be limited to one fiber optic cable or cables of a combined maximum of 1 inch diameter to be installed in one conduit with a maximum diameter of 1.2 inches per SCG/SDG&E pipeline.
- SCG/SDG&E may deny service under this schedule for a particular location or route if SCG/SDG&E determines that there is now, or will be in the next 60 months, insufficient capacity in its pipelines to accommodate placement of fiber optic cable, or that placement of fiber optic cable would create a threat to the safety or reliability of SCG/SDG&E’s gas service. SCG/SDG&E may not deny service on insufficiency of capacity, if capacity is forecast to be adequate for at least the next 60 months. SCG/SDG&E may offer Carrier service for a particular location or route where there will be insufficient capacity within 60 months on condition that Carrier agrees to pay a portion acceptable to SCG/SDG&E of the cost of increasing the capacity of SCG/SDG&E’s pipelines in that particular location or route.

If actual future local growth creates the need to add capacity to the particular pipeline segment(s) occupied by the fiber optic cable at any time one or more years after the effective date of the contract, SCG/SDG&E will promptly notify the Carrier and provide the company with an estimate of the least cost method of adding needed additional capacity. The amount of additional capacity needed will be determined by employing standard utility planning procedures that consider cost efficiency and effectiveness. The Carrier would have the option of: (1) paying the proportionate share of the incremental costs of adding the needed capacity in the most effective manner, or (2) removing the conduit from the pipeline.

Application of the Schedule No. G-FIG’s terms and Special Conditions would address/avoid potentially significant impacts to pipeline service capacity, and reduce those impacts to less than significant levels.

**Significance After Mitigation:** Less than significant.

---

## Impacts to Operations

**Impact UTL-2: The proposed new form of service will have service implications including potential impacts on operations.**

The proposed new form of service, Schedule No. G-FIG, has service implications including potential impacts on operations, existing capacity and future expansion of active gas pipelines. SCG/SDG&E does not anticipate that maintenance required on the conduit or fiber optics installed in active pipelines would necessitate shutting off the respective gas pipeline at any time, which could impose a cost on the ratepayers either through disruption or curtailment of service.

SCG/SDG&E would require that FIG technology would not necessitate the interruption of gas service either upon the initial installation or subsequent maintenance.

Additionally, the current flowing capacity would decline as a direct result of conduit installation in existing natural gas pipelines using the proposed tariff service. Only pipelines that operate at 60 psi or less would be eligible for this service. Moreover, any possible impact would be very local in nature, affecting only a particular distribution line. In the case that installation of conduit and fiber optic cable could interfere with pipeline capacity needed for service, SCG/SDG&E has drafted special conditions upon which this potential is taken into account.

Finally, further issues exist in response to when capacity of the distribution system must be expanded due to future gas load demands. To resolve this issue, SCG/SDG&E would not allow installation of fiber optic cable in any pipeline if installation would result in insufficient gas capacity in the line in the next 60 months. However, installation would be allowed if arrangements were made for the carrier to pay for the increase in gas capacity, thereby avoiding that situation. Thus, in the case of capacity constraints more than 60 months in the future, the Carrier may elect to terminate service or relocate its route, such that no additional pipeline construction or trenching would occur.

**Mitigation Measure UTL-2a: Primary operations and maintenance procedures shall be modified to address potential operational impacts.**

The primary operations and maintenance procedures that will need to be modified in response to the following subjects:

- **Leak Survey** – It is anticipated that leak survey of pipeline containing fiber optic cable will increase because SCG/SDG&E’s employees will need to survey the manholes where the fiber optic cable will be brought to the surface. This procedure will comply 49 CFR 192.723b(1), which requires that leak surveys be conducted at any location providing the opportunity for finding gas leaks.
- **Locate and Mark** – Locating wire will be installed with the PE conduit to locate the conduit beyond the steel main.
- **Leak Repair** – To the extent possible, leak repairs will be made with specialized mechanical fittings to minimize damage to the conduit and cable.
- **Third Party Damages** – The primary concern after a third party damage will be to prevent hazards to the public and employees. To the extent possible the conduit and cable will be pulled out to minimize damage. Once the damaged section is replaced, the conduit will be re-installed and capped. The Carrier will then be responsible for the insertion of the cable under the inspection of SCG/SDG&E.
- **Service Connection** – To the extent possible mechanical means will be utilized when providing gas service to new customers to minimize damage to the conduit and cable

from welding directly on the steel pipe. At this time, the largest mechanical service connection available is two inches. Any service connection larger than two inches will be welded.

- **Main Relocations** – In the event that a main containing fiber optic cable has to be relocated, the fiber optic cable will be removed prior to starting the relocation work. SCG/SDG&E will coordinate these jobs with the Carrier.
- **Pinching Process** – The space between FIG exit and re-entry fittings will be used as pre-designated pinching points. In order for this proposal to work, utility locator maps (also known as “Atlas Sheets”) will have to be clearly marked with the location of FIG fittings. The required information can be posted on Atlas Sheets as part of the FIG installation process. In extreme cases where a main containing cable has to be pinched, tests conducted to date have shown that the hydraulic tool used for pinching the gas pipeline will sever the conduit and cable. However, there will be no interference with gas control procedures.
- **Mapping and Tracking Requirements** – company procedures will be revised to include the process of identifying FIG exit/entry locations and mains serving as FIG carriers on SCG/SDG&E Company Atlas Sheets.
- **Static Electricity** – Although the risk associated with static electricity produced during the handling of PE conduit is low, following company procedure 184.0160, which deals with the process of working with PE pipe will mitigate this risk.
- **System Capacity** – The installation of the PE conduit in gas mains will have some impact on the capacity of the line. System analysis will be conducted prior to the installation of conduit to ensure that line capacity will not be adversely impacted.

**Significance After Mitigation:** Less than significant.

---